

Summary

Rectum adenocarcinoma is one of the most frequent tumour diseases in the Czech Republic. Therefore any progress in therapy or prevention of this disease can have a significant impact on mortality and morbidity of major amount of oncological patients. Within therapy the neoadjuvant concomitant radiochemotherapy or the sole radiotherapy is used before surgical resection in one third to half of all newly diagnosed cases. The goal is to achieve tumor downstaging and local relaps probability decrease.

There is a large amount of processes on molecular and cellular level in organism reaction to neoplasia genesis, whose understanding can have a substantial impact on therapy's success rate or on therapy's efficiency prediction. One of these processes is angiogenesis induced by high production of vascular endothelial growth factor (VEGF). As per immunohistochemical studies VEGF is not expressed in typical colorectum mucous membrane. However it is strongly expressed in case of adenocarcinoma.

Another important process of organism's malignancy response is tumour tissue infiltration by CD8+ T lymphocytes (TIL), which are one of the important components of cellular immunity against tumour and which significantly contribute to tumour cells elimination. Potential of CD8+ T lymphocytes is considerable not just in patients' prognosis and treatment response prediction, but also in possibility of utilization of these cells for specific tumour immunotherapy.

In this thesis a change dynamics of two biomarkers (VEGF a CD8+ TIL) was retrospectively researched in a sample of 53 patients with locally developed rectum adenocarcinoma treated by presurgical radiochemotherapy. Research was conducted by comparison of VEGF and CD8+ TIL markers quantity before treatment and after the treatment. Furthermore it was examined whether a change of this expression has any impact on disease prognosis or treatment response prediction.

In case of VEGF levels examination the median value of overall survival (OS) period was shorter in case of patients whose VEGF expression was decreased after radiochemotherapy. However this difference was not proved to be statistically significant ($p = 0,13$). VEGF expression decrease after presurgical radiochemotherapy was not predictive for a treatment response nor for a downstaging ($p = 0,61$).

In case of CD8+ TIL density evaluation it's growth after radiochemotherapy did not have significant impact on overall survival ($p = 0,16$). Impact of CD8+ TIL density growth on

downstaging was also insignificant ($p = 0,37$). Nevertheless patients with growth of CD8+ tumour infiltrating lymphocytes density after radiochemotherapy reached 2,5 times higher median value of overall survival compared to other patients without growth of CD8+ tumour infiltrating lymphocytes, although statistically insignificant.